

CLAIMS

What is claimed:

1. A superabsorbent polymer comprising
 - a) a polymeric resin composition comprising
 - 5 i) from about 55 to about 99.9 wt.% of polymerizable unsaturated acid group containing monomers;
 - ii) from about 0.001 to about 5.0 wt.% of an internal crosslinking agent;
 - iii) from 0 to 25 wt % of a preneutralizing agent; wherein the polymeric resin composition is preneutralized from 0 to about 50 mole %; and
 - 10 b) a water swellable, water-insoluble aminopolysaccharide polymer;wherein when the superabsorbent polymer is contacted with an aqueous solution, the polymeric resin is neutralized by the aminopolysaccharide polymer so that the superabsorbent polymer has a degree of neutralization of about 20 mole % or more than the preneutralization degree of the polymeric resin composition.
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2. The superabsorbent polymer of Claim 1 having a gel bed permeability of $100 \times 10^{-9} \text{ cm}^2$ or greater.
 3. The superabsorbent polymer of Claim 1 having a liquid capacity of about
20 20 g/g or greater.

4. The superabsorbent polymer of Claim 1 having a liquid capacity of about 25 g/g or greater.
5. The superabsorbent polymer of Claim 1 having a Gel Bed Permeability of about $200 \times 10^{-9} \text{ cm}^2$ or greater.
6. The superabsorbent polymer of Claim 1 having a Gel Bed Permeability of about $300 \times 10^{-9} \text{ cm}^2$ or greater.
7. The superabsorbent polymer of Claim 1 further comprising from about 0.001 to about 5.0 wt.% of surface crosslinking agent applied to the particle surface.
8. The superabsorbent of Claim 1 is a mixture of aminopolysaccharide and the polymeric resin in a weight ratio of about 5:95 to about 95:5, and the aminopolysaccharide is neutralized from 0 to about 25 mole %.
9. The superabsorbent polymer of Claim 1 wherein the aminopolysaccharide polymer is a chitosan polyamine.
10. The superabsorbent polymer of Claim 1 further comprising a surface

treatment.

11. The superabsorbent polymer of Claim 10 having a AUL(0.9psi) of 15 or more and GBP of $450 \times 10^{-9} \text{ cm}^2$ or greater.

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12. A superabsorbent polymer comprising:

a) from about 1 to about 99 wt.% of crosslinked polyacrylic acid resin wherein the polyacrylic acid resin is preneutralized from 0 to about 50 mole %; and

b) from about 1 to about 99 wt.% of water swellable, water-insoluble
10 aminopolysaccharide polymer.

wherein when the superabsorbent polymer is contacted with an aqueous solution, the crosslinked polyacrylic acid resin is neutralized by the aminopolysaccharide polymer so the superabsorbent polymer has a degree of neutralization of about 20 mole % or more than the preneutralization degree of the polyacrylic acid resin.

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13. The superabsorbent polymer of Claim 12 wherein the crosslinked polyacrylic acid has a degree of neutralization of 30 mole % or more.

14. The superabsorbent polymer of Claim 12 having a liquid capacity of about
20 20 g/g or greater.

15. The superabsorbent polymer of Claim 12 having a liquid capacity of about 25 g/g or greater.

16. The superabsorbent polymer of Claim 12 having a Gel Bed Permeability of about $200 \times 10^{-9} \text{ cm}^2$ or greater.

17. The superabsorbent polymer of Claim 12 having a Gel Bed Permeability of about $300 \times 10^{-9} \text{ cm}^2$ or greater.

18. The superabsorbent polymer of Claim 12 further comprising from about 0.001 to about 5.0 wt.% of surface crosslinking agent applied to the particle surface.

19. The superabsorbent polymer of Claim 18 having a AUL(0.9psi) of 15 or more and GBP of $450 \times 10^{-9} \text{ cm}^2$ or greater.

20. The superabsorbent polymer of Claim 10 wherein the aminopolysaccharide polymer is chitosan.

21. An absorbent composite comprising a superabsorbent polymer comprising:

a) a polymeric resin composition comprising

i) from about 55 to about 99.9 wt.% of polymerizable unsaturated acid group containing monomers;

ii) from about 0.001 to about 5.0 wt.% of internal crosslinking agent;

iii) from 0 to 25 wt % of a preneutralizing agent; wherein the polymeric resin composition is preneutralized from 0 to about 50 mole %; and

b) a water swellable, water-insoluble aminopolysaccharide polymer;

wherein when the superabsorbent polymer is contacted with an aqueous solution, the polymeric resin composition is neutralized by the water swellable, water-insoluble aminopolysaccharide polymer and the superabsorbent polymer has a degree of neutralization of about 20 mole % or more than the preneutralized amount of the polymeric resin composition.

22. The absorbent composite of Claim 21 wherein the superabsorbent polymer has a liquid capacity of about 20 g/g or greater.

23. The absorbent composite of Claim 21 wherein the superabsorbent polymer has a liquid capacity of about 25 g/g or greater.

24. The absorbent composite of Claim 21 wherein the superabsorbent polymer has a Gel Bed Permeability of about $200 \times 10^{-9} \text{ cm}^2$ or greater.

25. The absorbent composite of Claim 21 wherein the superabsorbent polymer has a Gel Bed Permeability of about $300 \times 10^{-9} \text{ cm}^2$ or greater.

5 26. The absorbent composite of Claim 21 wherein the superabsorbent polymer further comprises from about 0.001 to about 5.0 wt.% of surface crosslinking agent applied to the particle surface.

27. The absorbent composite of Claim 21 having a AUL(0.9psi) of 15 or more
10 and GBP of $450 \times 10^{-9} \text{ cm}^2$ or greater.

28. The absorbent composite of Claim 21 wherein the aminopolysaccharide polymer is a chitosan.

15 29. An absorbent composite of Claim 21 further comprising a mixture of fibers.

30. A process for the continuous production of superabsorbent polymer composition for absorbing aqueous or serous fluids, as well as blood, comprising the
20 steps of:

a) preparing a polymeric resin composition by reacting

i) from about 55 to about 99.9 wt.-% of polymerizable unsaturated acid group containing monomers; and

ii) from about 0.001 to about 5.0 wt.-% of internal crosslinking agent; and

5 iii) from 0 to 25 wt % of a preneutralizing agent; wherein the polymeric resin composition is preneutralized from 0 to about 50 mole %; and

b) preparing an aqueous solution containing a water swellable, water-insoluble aminopolysaccharide polymer;c) mixing the polymeric resin composition with the aqueous solution containing aminopolysaccharide polymer to form the superabsorbent polymer; and

10 d) drying the superabsorbent polymer

wherein when the superabsorbent polymer is contacted with an aqueous solution, the polymeric resin composition is neutralized by the aminopolysaccharide polymer so the polymeric resin composition is neutralized by the water swellable, water-insoluble aminopolysaccharide polymer such that the superabsorbent polymer has a degree of
15 neutralization of about 20 mole % of more than the preneutralization degree of the polymeric resin.

31. The process of Claim 30 wherein the aminopolysaccharide polymer is chitosan.

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